

INITIAL STATEMENT OF REASONS

Watershed Protection Extension, 2002

[March 22, 2002]

Title 14 of the California Code of Regulations (14 CCR):

Amend:

§ 895.1	Definitions
§ 898(a)	Feasibility Alternatives
§§ 914.8 [934.8, 954.8](g)	Tractor Road Watercourse Crossing
§§ 916 [936, 956](e)	Intent of Watercourse and Lake Protection
§§ 916.2 [936.2, 956.2](d)	Protection of the beneficial Uses of Water and Riparian Functions
§§ 916.9 [936.9, 956.9](y)	Protection and Restoration in Watersheds with Threatened or Impaired Values
§§ 916.11 [936.11, 956.11](b)	Effectiveness and Implementation Monitoring
§§ 916.12 [936.12, 956.12](f)	Section 303(d) Listed Watersheds
§§ 923.3 [943.3, 963.3](h)	Watercourse Crossings
§§ 923.9 [943.9, 963.9](g)	Roads and Landings in Watersheds with Threatened or Impaired Values

PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATIONS ARE INTENDED TO ADDRESS

In 1996, the State Fish and Game Commission listed Coho salmon south of San Francisco Bay as threatened under the State Endangered Species Act (ESA). Then in 1997, the National Marine Fisheries Service (NMFS) listed Coho salmon as threatened throughout its range in California under the Federal ESA. Steelhead trout was listed by NMFS as a threatened species in the Northern California ESU on June 7, 2000. In April 2001 the State Fish and Game Commission accepted a petition to list Coho salmon as endangered north of San Francisco Bay.

Additionally, a comprehensive review of the California Forest Practice Rules (FPRs), with regard to their adequacy for the protection of salmonid species, was been prepared for the Board (*Report of the Scientific Review Panel* [SRP report], 1999). Following an extensive review of the regulations, "The SRP concluded the FPRs, including their implementation (the 'THP process') do not ensure protection of anadromous salmonid populations" (*Report of the Scientific Review Panel*, 1999).

The Board of Forestry and Fire Protection recognized the substantial concerns raised by other agencies additionally charged with the protection of the State's valuable watershed resources. The Board is also extremely aware of the need to protect listed species that may be impacted by practices that are regulated under the Board's purview, regardless of their location within the State. Furthermore, the Board recognized the potential for economic impacts to timberland owners and others that could be imposed from certain types of restrictions or requirements. Considering these factors, the Board adopted changes to the Forest Practice Rules under a previous rulemaking package (Protection for Threatened and Impaired Watersheds, 2000, OAL File No. Z00-0118-14). In order to further clarify the Board's intent to address the protection of listed aquatic species and watercourses listed as impaired (pursuant to section 303(d) of the Clean Water Act) on a watershed basis, the Board chose to establish a specific period of time that the rule changes adopted July 1, 2000, would be effective. By imposing a limit on the effective period of the rule changes, the Board would be allowed to work with landowners, scientists and other parties during the balance of the year 2000 to investigate whether an alternative regulatory approach could be developed. The Board recognized that any alternative approach would not be fully implemented prior to December 31, 2000 and extended the rule for a additional year in previous rulemaking package (Protection for Threatened and Impaired Watersheds, 2001, OAL File No. Z00-1107-03S). Although advances have been made toward this goal, it is a complex issue and much remains to be done.

SPECIFIC PURPOSE OF THE REGULATIONS

The Z'berg-Nejedly Forest Practice Act of 1973 (ref. Division 4, Chapter 8 of the Public Resources Code) established the Legislature's concern throughout the State relating to the use, restoration, and protection of the forest resources. The Legislature further recognized that these forest resources provide watershed protection and fisheries maintenance. The Legislature declared that it is the policy of the State to encourage responsible forest management that considers the public's need for watershed protection and fisheries (ref. PRC § 4512). Furthermore, the Legislature stated its intent to create and maintain an effective and complete system of regulation for all timberlands. This system is to assure the productivity of timberlands and the goal of maximum sustained production of high quality timber products. It is also intended to give consideration to values related to watershed, wildlife, and fisheries (ref. PRC § 4513). Public Resources Code § 4551 gives the Board the authority to adopt such rules and regulations which will enable it to carry out its responsibilities to protect fish and water resources, including but not limited to streams, lakes, and estuaries.

Although the SRP report was specific to the North Coast region, the Board believes that many of the recommendations made in the report could be effectively applied throughout the State to ensure the protection of the beneficial uses of water, including fisheries and other aquatic habitat.

Pursuant to PRC §§ 4512, 4513, 4551, 4551.5, 4552, and 4553; the Board is moving forward with action to further analyze the effectiveness of the rules to protect listed species and the beneficial uses of water. The Board established a group (Ad Hoc Watershed Committee) to research whether an alternative approach can be developed that would use enhanced scientific analysis and the principals of watershed analysis to determine, among other things, the potential cumulative environmental impacts of proposed timber harvesting operations and associated activities. The Committee has made advances toward that goal, but this is a complex issue and much remains to be done. The Board hopes that the various agencies and the public will bring an accumulation of knowledge applicable to specific watersheds and basins together. This knowledge could then be used to tailor site-specific forest practices to avoid any significant environmental impacts from individual timber harvesting plans, or cumulative impacts from various activities in a watershed that could combine with the effects of timber harvesting. The proposed changes are intended to provide the Board adequate time to evaluate and implement alternatives to those rules that became effective July 1, 2000 and were extended January 1, 2001. The Board *Ad Hoc* Watershed Committee is continuing to accumulate knowledge from the evaluation and research efforts of other agencies and institutions.

During the last year of application of these regulations administrative anomalies have been discovered. Hence there are some changes to the language adopted in July 2000 proposed in this regulatory extension. The changes proposed address issues of clarity and unintended public impacts and misdirected protective measures. The *Ad Hoc* Watershed Committee will continue the accumulation of knowledge during the upcoming year. The Committee will continue refining application of the best science available to select the appropriate tools to address watershed evaluation or assessment. This is consistent with the Board mandate under Section 4553 of the Public Resources Code. If further work is still necessary, any identified improvements which can be made will be proposed in the upcoming year. The complexity of this regulatory effort is not only in the science of watershed evaluation and assessment but in the “art” of translating that science into regulatory language. Regardless, the Board is continuing to put forward regulations for the protection of salmonid species and the beneficial uses of water which are based on the best science and protective practices available.

NECESSITY

As stated above, the Board recognizes that any alternative approach would not be fully implemented prior to December 31, 2001. Therefore, the Board believes it is necessary to extend the effective period of those changes adopted by the Board that became effective July 1, 2000 and extended January 1, 2001. The Board last year extended that rule package for an additional year with changes that resulted from field testing the rule package for the previous one and one half years (Protection for Threatened and Impaired Watersheds, 2002). An alternative to these rules was proposed last year to provide performance based rather than prescriptive rule but it was denied by OAL as it needed more work. This rulemaking action proposes to extend the effective date of the changes

to December 31, 2003. The Board is also submitting the revised performance based package (Interim Watershed Mitigation Addendum -2001) to test against these rules. The extension of the (Protection for Threatened and Impaired Watersheds, 2002) will provide the Board adequate time to evaluate and implement alternatives to those rules that became effective July 1, 2000.

In April 2001 the State Fish and Game Commission (Commission) proposed an emergency regulation (Emergency Action to Add Section 749.1, Title 14, CCR) regarding incidental take of Coho salmon north of San Francisco Bay. This emergency regulation will be effective during the Commissions 12 month review of a proposed listing of Coho salmon as endangered in that area. Their emergency regulation allows incidental take of Coho during timber operations if the timber operations are conducted in accordance with conditions specified in the revised final rule language "Protection for Threatened and Impaired Watersheds, 2000," in Section 895.1 *et seq.*, Title 14, CCR.

Further the state legislature expressed its desire to have these rules extended in section 12 and 13 of Senate Bill 234. This bill tied the Board's funding to extension of the Protection for Threatened and Impaired Watersheds, 2000 rule through January 1, 2003. An excerpt from the bill follows:

SEC. 12. Sections 895.1, 898, 898.2, 914.8, 916, 916.2, 916.9, 916.11, 916.12, 923.3, 923.9, 934.8, 936, 936.2, 936.9, 936.11, 936.12, 943.3, 943.9, 954.8, 956, 956.2, 956.9, 956.11, 956.12, 963.3, and 963.9 of Title 14 of the California Code of Regulations, as those sections read on December 31, 2001, which sections, or designated amendments to those sections, will expire on December 31, 2001, shall remain effective and operative until January 1, 2003. On that date, the sections, or the designated amendments to those sections, as the case may be, are repealed. From January 1, 2002, until January 1, 2003, the State Board of Forestry and Fire Protection may not add to, amend, or repeal those regulations, unless it is necessary in order to be consistent with any statutory changes enacted by the Legislature during that time period.

SEC. 13. Notwithstanding any other provision of law, the sum of two hundred thirteen thousand dollars (\$213,000) is hereby appropriated from the California Environmental License Plate Fund to the Department of Forestry and Fire Protection for expenditure during the 2001-02 fiscal year, for support of the Board of Forestry and Fire Protection, to be used consistently with one or more of the purposes specified in Section 21190 of the Public Resources Code.

ALTERNATIVES TO THE REGULATIONS CONSIDERED BY THE BOARD AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES

No other alternatives to these proposed regulations were presented to, or considered by the Board at this time.

ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS

The Board has not identified any alternatives that would lessen any adverse impact on small businesses.

EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS

The changes proposed under this rulemaking action would extend the effective date of rules adopted by the Board in March and April of 2000, until December 31, 2003. This is a one (1) year extension of the changes which became effective July 1, 2000. In considering this proposed change to the rules, the Board considered the information presented regarding the potential for economic impacts and benefits resulting from the previously adopted rules. The following pertains to those previously adopted changes, but is also applicable to this rulemaking action, as the same costs and benefits are applicable to the extent they could be expected to be incurred over a one (1) year period.

The Board reviewed substantial information presented by the public and the agencies regarding the potential for economic impacts to the State's citizens that resulted from the regulations adopted by the Board, which became effective July 1, 2000. The Board made a number of changes in the originally proposed rules that reduced the economic impact. The adopted rules added protections for impaired watersheds which will retain trees which would previously been harvested and additional requirements for erosion control, watercourse crossings, restoration, monitoring, and selection of alternatives. These measures are expected to increase the cost of harvesting and reduce the numbers of trees removed near streams. The Board carefully balanced the need for the protection and restoration of impaired watersheds with the socio-economic impacts. The Board requested that the California Department of Forestry and Fire Protection review the economic analysis contained in the Initial Statement of Reasons. The Department provided the Board with an analysis showing very different results than those offered by the public. The analysis pointed out the areas where the comments received were excessive in the purported economic impact.

The adopted rules are expected to affect small and large timberland owners by increasing the cost for timber harvesting. These extra costs are associated with planning and operations, and may include but are not limited to: additional planning, construction and maintenance costs for roads and watercourse crossings, additional cost of professional consultations, and costs associated with a reduction in long term sustained yield (LTSY).

Although the Board staff has identified the potential for increased costs associated with the changes to the Rules, the Board staff also identified the potential for increased benefits. Some of the benefits derived from the change in the Rules could be contributed

the ability of timberland owners to continue to harvest timber without the restrictions that could result from a determination of "take" by the National Marine Fisheries Service. Benefits will also be derived from potentially enhanced beneficial uses of water for drinking and recreational uses.

It should be noted that the changes previously adopted by the Board are effective for a period of 2 1/2 years only. The current proposal would extend that period for one (1) additional year. Considering this limited period of application and the increased benefits derived from the changes, the Board staff does not anticipate that the increased costs will result in a significant adverse economic impact on affected persons.

The Board believed that the adoption of the regulations would not likely to create or eliminate jobs within California. The changes previously adopted by the Board are effective for a period of 2 1/2 years only. The current proposal would extend that period for one (1) additional year. Considering this limited period of application and the ability for most landowners to operate outside the affected areas, the Board staff does not anticipate that the proposed changes under this rulemaking action will eliminate or create jobs within California.

A major component of the different versions of forest practice rule packages is the significant increase in the size and harvest restrictions within riparian zones. The economic analysis submitted by William McKillop of the proposed July 1999 forest practice rules packages assumed that the rule package would apply to 80% of the timber harvests in the state and also infers that currently submitted and approved timber harvest plans contain no significant environmental limitations to protect salmonids. A more careful delineation of the area where the proposed rules will apply as well as a more accurate assessment of the current baseline requirements for forest retention within existing riparian zones leads to much lower estimates of the potential reduction in timber harvests under the February 2000 as well as the currently proposed March 2000 rules packages. The following table compares the original estimate submitted by Dr. McKillop with estimates of the original package as well as the March 2000 package corrected for the reduced area covered by the proposed rules as well as a more reasonable estimate of current baseline regulatory impacts.

	Estimated Harvest Affected	Riparian Zone Additional 'Leave Tree' Volume	Total Net New Volume of 'Leave Trees' compared to current practices
McKillop CFA/FRC estimate	80%	16%	13%
CDF Feb. 2000 package estimate	56%	11%	6%
CDF March 2000 package estimate	56%	4%	2%

The geographic area of application of the proposed rule package was reduced substantially when the clauses referring to any tributary draining into 303 (d) watersheds were removed and the area of application was limited to watersheds with endangered stocks of salmonids. Under the proposed rules, the Department of Fish and Game must make a determination regarding whether specific planning watersheds could support salmonid populations. Based on the most recent maps of the potential extent of endangered salmonid populations as well as the fact that some planning watersheds inside of the potential range will have impassable barriers, a reasonable estimate of the area and harvests affected would be the four North Coast counties of Del Norte, Humboldt, Mendocino, and Sonoma. This estimate could undercount affected lands in counties such as Siskiyou and Trinity that are within the broad range of Coho salmon but may overcount acres in planning watersheds with impassable barriers. Using published data from the USDA Forest Service Pacific Northwest Research Station, the rules would affect 37% of the timberland acres, 50% of the forest growth potential and 56% of the forest harvest (see attached summary sheet). We assume that the rules would affect 56% of baseline harvests rather than the 80% estimate in the economic analysis submitted by Dr. William McKillop for CFA/FRC.

The McKillop analysis estimated that harvests would decline by 16%, primarily due to harvest restrictions within riparian zones. This estimate was based on a number of geographic information system (GIS) based analyses by forest landowners. As many of the landowners and foresters pointed out during committee meetings and testimony, current timber harvest plans already follow written guidelines, THP-specific review team guidelines, and landowner forest plan guidelines that provide considerable environmental protection to salmonid species and other values. CDF conducted a GIS based analysis of the different proposed riparian zones within a 100,000 acre area including and surrounding CDF's Jackson Demonstration State Forest on the central Mendocino County coast. In addition, we estimated the long-term impact of leave tree retention requirements of four different rule packages. Current forest practice rules as applied in areas without endangered salmonids and with endangered salmonids currently require leave tree retention. Using the same framework, estimates of the impact of both the rule package analyzed by Dr. McKillop as well as the current package before the board were also developed. The estimates of the February 2000 package produced nearly identical results as those summarized by Dr. McKillop – 16% of tree volume would have to be maintained in perpetuity. The financial impact must be compared to current baselines in the region where the rules would be applied. Recently approved timber harvest plans in coho salmon areas already have significant riparian restrictions. The following table summarizes acres and harvestable volume under different scenarios. The most reasonable estimate of the economic impact will be in comparison to the 'CDF Coho Region' baseline rather than a Zero baseline or an estimate of Forest Practice Rules minimums (CDF FPR min).

	Riparian Zone Acres			Estimated Riparian Zone Retained Conifer Tree Volume		
Option	Class I	Total	Difference	Class I	Total	Difference

	streams	streams	from Baseline	streams	streams	from Baseline
FPR minimums	3.8%	10.8%		1.9%	3.6%	
CDF coho (baseline)	3.8%	16.6%		2.8%	4.8%	
March 2000 rules	7.9%	20.8%	4.2%	6.8%	8.8%	4.0%
Strict Feb 2000 rules	9.3%	26.3%	9.7%	6.9%	15.8%	11.0%

Based on this analysis, the most appropriate estimates of the economic costs of the increased conifer tree volume retention for the proposed rule packages would be an 11% reduction for the original February 2000 package (rather than the 16% reduction suggested by Dr. McKillop) and a 4% reduction for the proposed March 2000 rules.

Long-term estimates introduce undocumented additional 50% in unharvestable growth. The long-term estimates based on the survey results suggest a 50% increase in timber volume within riparian zones and unstable areas that are the focus of the use limitations. There is no publicly available information that would suggest that timber inventories and sustainable harvests will increase by 50% over the next decade in the area of proposed application. It is doubtful that timberland owners would be emphasizing timber management investments in areas with known environmental sensitivities. The use of these long-term estimates seems to simply inflate the initial estimates.

Estimates suggested increases of around \$30/mbf for both logging costs and road-related costs. While the total sum of these added costs is large, the range of costs are similar to increased costs related to investments in skyline cable logging and road maintenance that are currently undertaken already by many forest landowners. If many landowners are already investing in relatively more expensive harvesting techniques, it is not appropriate to apply all estimated costs to the proposed rule package.

In his March 14 testimony, Dr. McKillop added an additional estimate of increased cost to consumers if local wood supplies decline. While this would be a natural economic outcome of tightened supplies, it is incorrect to double count the losses to both producers and consumers when it is actually a transfer from one class to the other.

Prescriptions based on watershed assessments and the goal of providing for essential ecological functions should allow for more active forest management than the default no-cut assumptions used in most of the analyses by landowners.

Considerable detailed evidence was presented during committee meetings and during testimony that suggest that relatively modest increases in protection over currently applied forest practice rules would address many of the limitations raised by stakeholders interviewed during the Science Review Panel process. For example, Washington State's proposed forest practice rules have been deemed to meet the 4(d) requirements of the

ESA by NMFS and use basal area minimums rather than canopy closure minimums to guide forest management within riparian zones. Using more robust measurement techniques could substantially reduce the cost of a rules package while still providing all the necessary protections for salmonids.

In addition to the information presented above, the Board staff previously presented the potential costs estimated for each specific rule section adopted by the Board in March and April of 2000. The following is a brief summary of those estimated costs. It should be noted that these costs pertain the rules as originally presented by the Board. These costs are not expected to be fully incurred by individuals or landowners as a result of this proposal to extend the effective date to December 31, 2003. This is primarily due to the limited period of application (1 year), and secondarily due to significant changes in the rules adopted by the Board in comparison to those originally proposed.

14 CCR § 895.1 Definitions

The Board staff estimated that there are no significant costs associated with this proposed revision to the Rules. However, harvesting restrictions based upon the redefined Watercourse and Lake Protection Zones could affect the LTSY on various properties. These potential costs are presented below and have also been addressed above.

14 CCR § 898 Feasibility Alternatives

The Board staff estimated that there are no significant costs associated with this proposed revision to the Rules. The Board has determined that a Registered Professional Forester is currently required to assess all cumulative impacts that have the potential to combine with the project and address them in the Timber Harvesting Plan. Therefore, no additional costs are predicted to result from this change in the regulations.

14 CCR §§ 914.8 [934.8, 954.8] Tractor Road Watercourse Crossings

The Board staff estimated that there are no significant costs associated with this proposed revision to the Rules. The change in rule language requires that a plan contain a description of a tractor watercourse crossing on a watercourse that supports fish. This additional information is not expected to result in a significant amount of additional plan preparation time or expense. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

14 CCR §§ 916 [936, 956] Intent of Watercourse and Lake Protection

The Board staff estimated that there are no significant adverse economic impacts associated with this proposed revision to the Rules. Where the Board of Forestry and Fire Protection has indicated those specific activities that must be avoided to meet the Board's intent regarding watercourse and lake protection, those activities are already required under current regulations to protect native aquatic and riparian-associated species and the quality and beneficial uses of water. It is not anticipated that additional

costs would be incurred. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

14 CCR §§ 916.2 [936.2, 956.2] Protection of the Beneficial Uses of Water and Riparian Functions

The Board staff estimated that there are no significant adverse economic impacts associated with this proposed revision to the Rules. The current Rules require that certain factors be considered when determining the measures that are necessary for adequate protection of the beneficial uses of water. The proposed changes further define these factors. Where the Board of Forestry and Fire Protection has indicated that the factors must be protected to meet the Board's intent regarding protection of the beneficial uses of water, the protection of these factors is already required under current regulations. It is not anticipated that additional costs would be incurred. In regard to the restoration of these factors, the Board staff estimated that this regulation could potentially result in long-term costs that would vary greatly depending on, but not limited to 1) the factor requiring restoration (i.e. beneficial uses of water, riparian habitat, or others), 2) the severity of the impairment, 3) the affected area under the control of the plan submitter, and 4) the long-term land management goals of the plan submitter. The protection measures currently provided in the Rules and those that are proposed under this rulemaking package are anticipated to provide the means to secure restoration over a long period of time in most instances. It is not anticipated that substantial additional costs will be incurred. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

As no other costs have been associated with this proposed revision to the Rules, the Board has determined that the potential for additional costs for this regulation would be minimal in the context of overall, long-term watershed management. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

14 CCR §§ 916.9 [936.9, 956.9] Protection and Restoration in Watersheds with Threatened or Impaired Values

The Board staff estimated that this regulation could potentially result in an adverse economic impact on businesses. However, the costs associated with the requirements imposed by the new regulations are difficult to estimate as they vary greatly. The Board staff estimated that this regulation could potentially result in long-term costs that would vary greatly depending on, but not limited to 1) the current condition of the watershed, (i.e. beneficial uses of water, riparian habitat, or others), 2) the topographic and geologic features affecting harvesting practices, 3) the affected area under the control of the plan submitter, and 4) the long-term land management goals of the plan submitter. The protection measures currently provided in the Rules and those that are proposed under this rulemaking package are anticipated to provide the means to secure restoration over a long period of time in most instances. Therefore, some cost will be incurred over time and will not significantly impact overall cost of land management. However, some costs,

such as those associated with the restrictions on harvesting adjacent to watercourses could result in substantial costs, both short term and long term. However, these costs can also vary widely depending on numerous factors including, but not limited to the size of the ownership, previous harvesting activity, the proximity of the proposed harvesting to watercourses, and numerous other factors. Broad estimates for the regulations indicate that the overall statewide yearly cost could average \$150 million per year depending on the level of restriction applicable to an ownership, and the size of the area affected.

The Board staff also considered that increased levels of protection to watershed resources are likely to generate benefits that offset the costs anticipated from the change in the rules. Information from the Department of Fish and Game indicates an economic output from sport fishing in the State of approximately \$7.1 billion in 1996. The sport fishing industry alone generated 74,000 jobs that year. Other studies show that the public spends hundreds of millions of dollars each year on sport fishing. Some economists in Oregon have estimated that households, on the average are willing to pay \$2.50 to \$7.00 per month to protect or restore salmon. Those figures show an estimated \$3-8.75 million dollars per month that the public would be willing to spend to secure healthy anadromous fish habitat. Other values potentially derived from increased watershed protection could be attributed to a savings in necessary flood control in flood prone areas. Some estimates of \$208 per acre have been suggested as savings in flood-damage and other costs on downstream firms and households. Cleaner streams and healthier riparian ecosystems could also contribute to recreation and tourism in other ways besides fishing. Although the benefits derived from the change in the regulations are as difficult to calculate as are the costs due to the range of variables, the Board staff believes that the majority of the costs will be offset over the long-term by the benefits derived from enhanced watershed management.

Considering the broad range of circumstances that would affect costs associated with the new requirements, the Board has determined that estimations of the potential cost for this regulation would be difficult to present in a format that would provide for meaningful public disclosure. However, the following estimations of costs associated with various portions of the proposed Rules are provided for consideration:

One cost associated with the rule changes is related to opportunity costs, or impacts to Long Term Sustained Yield (LTSY). Expanding the Class I Watercourse and Lake Protection Zone (WLPZ) minimum width to 150 feet is likely to affect almost all standard-width Class I WLPZs, since very little is currently at 150 feet. (Nearly all WLPZs on >50% are probably cable and thus the table value of 150 feet is usually reduced to 100 feet.) The effect is to increase WLPZ area by about 50% or more, with that increase coming from timberland whose productivity and yield are otherwise largely unconstrained by stream protection considerations. It is estimated that this change will impact long term sustainable yields, which may be reduced by one or two percent for ownerships on the north coast.

It will be hard to entirely avoid timber operations within the Class I WLPZ in most cases. If the timberland owner chooses to avoid operations within the WLPZ, they will be affected by cost associated with the reduction in LTSY

The cost associated with describing existing Class I crossings, including RPF planning and writing time, could be as much as \$150 per crossing.

The costs associated with providing specifications for construction and use of new Class I crossings could be as much as \$200 per crossing considering the RPF's time.

Establishing a Special Management Zone (SMZ) for inner gorges could result in impacts to LTSY as described above. This could result in an additional ½ to 1- percent loss of regional LTSY similar to that from increasing the minimum Class I WLPZ.

Establishing a Special Management Zone for inner gorges could result in -expenditure of RPF time to evaluate and flag the SMZs. This could result in a cost of \$500 to \$2,000 per plan in some areas. A review by a Certified Engineering Geologist (CEG) could cost \$500 to \$4,000 per plan, depending on complexity and whether the geologist was an employee of the landowner or whether the landowner would have to hire a consultant.

The canopy retention requirements for Class I watercourses could result in an additional loss of LTSY, perhaps as much as ½ to 1% loss.

The requirement for retention of Large Woody Debris (LWD) recruitment trees may require time by an RPF to analyze the WLPZ stand and mark trees. This could take an additional two days of fieldwork per plan. Depending on the cost to retain an RPF, the additional costs could range between \$500 to \$2,500 per plan.

The requirements for operations during extended wet periods could result in additional costs to the LTO due to stopping-starting, waiting, and extended winter shutdown periods. These costs could be as much as \$2,000 to \$10,000 per plan. Putting rock on roads and landings might cost \$5,000 to \$20,000 per plan. The wet road provisions could also result in delays, or a requirement for road rocking. This could result in an additional cost of \$500 to \$5,000 per plan.

The requirements pertaining to the installation of drainage facilities could cause the operator to expend a few extra hours of tractor time every week at \$75 per hour. This could result in an additional cost of \$500 for a small tractor plan to \$3,000 for a large one.

The soil stabilization measures could result the use of a surface coating with oil or some similar material that won't wash away in the winter, and will last through the 3-year erosion maintenance period. It could also lead to side sloping and heavy mulching of abandoned road sections. Rocking could cost \$20,000 per mile. These requirements could result in a huge range of costs from \$0 to \$50,000 per plan (although a lot of

existing WLPZ road is already rocked). The oil or other super-stabilization could add half of what the rock cost (i.e. up to \$10,000 per plan).

Mulching other disturbed areas, particularly the additional areas and skid trails in the EEZ/ELZ, will cost \$500 to \$2,000 per plan.

In regard to erosion remediation, the work required would be very site specific. However, there could be significant RPF and consulting CEG time, as well as operational costs. Considering the development of the plan, and implementation costs, these requirements could result in additional costs of up to \$100,000, if included with a large plan.

In regard to the requirement for 3-year erosion maintenance; if one year is normal, then additional costs could be from \$500 for a few inspections to \$5,000+ if things need to be fixed.

In regard to limits to site preparation activities, protection of vegetation and duff in the ELZ/EEZ could result in the construction of very expensive control lines around Class III watercourses, and burning only during cool prescriptions when incomplete site preparation will result. The impact will be higher site preparation and planting costs. This could result in additional costs of \$5,000 per evenaged regeneration plan.

Considering the above cost estimates and the benefits that are likely to be derived from the protection of the beneficial uses of water including anadromous fish habitat, the Board staff has determined that the proposed regulations are not likely to have an significant adverse economic impact on businesses in the State.

14 CCR §§ 916.11 [936.11, 956.11] Effectiveness and Implementation Monitoring

The Board staff estimated that the proposed changes to the regulations could result in additional costs to the timberland owner. Those costs are associated with the design and implementation of monitoring programs. However, these costs can vary widely depending on numerous factors including, but not limited to the type of parameters targeted for monitoring, the frequency of monitoring, the types of equipment necessary and available to conduct the monitoring, and numerous other factors. Broad estimates for monitoring indicate that average yearly monitoring cost could range from \$30,000.00 to \$50,000.00, and may exceed \$100,000.00 depending on the extent of monitoring required, and the size of the area to be monitored. Considering the broad range of circumstances that would affect costs associated with the new requirements, the Board has determined that estimations of the potential cost for this regulation would be difficult to present in a format that would provide for meaningful public disclosure. However, the following estimations of costs associated with various portions of the proposed Rules are provided for consideration:

If the timberland owner chooses to avoid operations within the WLPZ, they will be affected by cost associated with the reduction in LTSY, if they choose to

operate within the WLPZ, they will be affected by the costs of effectiveness monitoring. Costs estimates for monitoring along ¼ to 1 mile of Class I could include:

For water temperature, one year of pre-harvest baseline data and one year of post-harvest data could cost about \$1,000 to \$3,000, including instruments, labor, data processing, and reporting, if done by an RPF. This cost could triple if a consultant does the work.

Collection and analysis of sediment data is more costly than for temperature data. A short two- or three-year program may cost \$4,000 to \$10,000.

For no net loss of LWD or recruitment potential, that should just be counting down and standing-future LWD, before and after; the cost could be \$1,000 to \$2,000.

As indicated in a previous section of this *Initial Statement of Reasons*, the Board staff also considered that increased levels of protection to watershed resources are likely to generate benefits that offset the costs anticipated from the change in the rules. Many of these increases could only be measured through an implementation/effectiveness monitoring program. Information from the Department of Fish and Game indicates an economic output from sport fishing in the State of approximately \$7.1 billion in 1996. The sport fishing industry alone generated 74,000 jobs that year. Other studies show that the public spends hundreds of millions of dollars each year on sport fishing. Some economists in Oregon have estimated that households, on the average are willing to pay \$2.50 to \$7.00 per month to protect or restore salmon. Those figures show an estimated \$3-8.75 million dollars per month that the public would be willing to spend to secure healthy anadromous fish habitat. Other values potentially derived from increased watershed protection could be attributed to a savings in necessary flood control in flood prone areas. Some estimates of \$208 per acre have been suggested as savings in flood-damage and other costs on downstream firms and households. Cleaner streams and healthier riparian ecosystems could also contribute to recreation and tourism in other ways besides fishing. Although the benefits derived from the change in the regulations are as difficult to calculate as are the costs due to the range of variables, the Board staff believes that the majority of the costs will be offset over the long-term by the benefits derived from enhanced watershed management.

Considering the above cost estimates and the offsetting benefits derived from correct implementation of effective Rules to protect the beneficial uses of water, the Board staff has determined that the proposed regulations are not likely to result in an adverse economic impact on businesses over the long-term.

14 CCR §§ 916.12 [936.12, 956.12]

Section 303(d) Listed Watersheds

The Board staff estimated that there are no significant costs associated with this proposed revision to the Rules. The Board has determined that the potential cost for this regulation

would be incurred by the State if site specific Rules are necessary. This cost would not exceed the costs normally incurred each year by the Board or Department of Forestry and Fire Protection to promulgate rule language. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

14 CCR §§ 923.3 [943.3, 963.3]

Watercourse Crossings

The Board staff estimated that there may be costs associated with this proposed revision to the Rules. Depending on the circumstances and previous management of a parcel, the proposed change in crossings from 50-year to 100-year could result in increased cost of \$500 to \$2,000.

Redesigning culverts on Class I watercourses to collect bedload, including the requirement that the culvert be as wide as the channel may lead to use of non-round culverts (e.g. elliptical), or to more use of bridges and arches on large streams. These structures are more expensive to buy and install than round pipes. Stream cross sections tend to be wider than they are deep, so a round pipe sized for discharge capacity alone probably won't meet the requirements of this rule. This change in the Rules could result in an average cost increase of 15% per new Class I crossing, or \$500 to \$5,000 per plan.

The 20% countersink requirement could reduce the cross sectional area of the culvert by a little over 14%. Getting this 14% back requires increasing the pipe diameter by about 7% (although 20% of this additional diameter would also have to be buried). These increases are similar in scale to the effect of going from 50-year to 100-year sizing, but are cumulative. There could be an additional cost of the 20% countersink of Class I culverts at between \$300 and \$1,500 per plan, when you consider many plans with no culverted Class I crossings, and a few with rather expensive crossings.

In order to prevent headcutting that could result from dropping the pipe, the landowner may have to use riprap, maybe stairstepped to allow fish passage. The average crossing may need 10 tons at \$25 per ton delivered, plus \$250 for placement. This would result in a cost of \$500. If this cost were averaged over many plans without new Class I crossings, it may only be \$100 per plan.

As indicated in a previous section of this *Initial Statement of Reasons*, the Board staff also considered that increased levels of protection to watershed resources are likely to generate benefits that offset the costs anticipated from the change in the rules. Many of these increases are expected to result from the construction of improved watercourse crossing facilities. These improved facilities will primarily reduce blockage to anadromous fish and will also reduce sediment input, which will greatly enhance spawning and rearing habitat for anadromous fish species. Information from the Department of Fish and Game indicates an economic output from sport fishing in the State of approximately \$7.1 billion in 1996. The sport fishing industry alone generated 74,000 jobs that year. Other studies show that the public spends hundreds of millions of dollars each year on sport fishing. Some economists in Oregon have estimated that households, on the average are willing to pay \$2.50 to \$7.00 per month to protect or

restore salmon. Those figures show an estimated \$3-8.75 million dollars per month that the public would be willing to spend to secure healthy anadromous fish habitat. Other values potentially derived from increased watershed protection could be attributed to a savings in necessary flood control in flood prone areas. Some estimates of \$208 per acre have been suggested as savings in flood-damage and other costs on downstream firms and households. Cleaner streams and healthier riparian ecosystems could also contribute to recreation and tourism in other ways besides fishing. Although the benefits derived from the change in the regulations are as difficult to calculate as are the costs due to the range of variables, the Board staff believes that the majority of the costs will be offset over the long-term by the benefits derived from enhanced watershed management.

Considering the above cost estimates and the offsetting benefits derived from improved watercourse crossings to protect the beneficial uses of water, the Board staff has determined that the proposed regulations are not likely to result in an adverse economic impact on businesses over the long-term.

14 CCR §§ 923.9 [943.9, 963.9]

Roads and Landings in Watersheds with Threatened or Impaired Values

The Board staff estimated that this regulation could potentially result in an economic impact on businesses. The protection measures currently provided in the Rules and those that are proposed under this rulemaking package are anticipated to provide the means to secure restoration over a long period of time in most instances. These costs can vary widely. Considering the broad range of circumstances that would affect costs associated with the new requirements, the Board has determined that estimations of the potential cost for this regulation would be difficult to present in a format that would provide for meaningful public disclosure. However, the following estimations of costs associated with various portions of the proposed Rules are provided for consideration:

In regard to maintaining or reducing the density of roads in a watershed, this regulation may not significantly impact landowners with established extensive road systems. These landowners would be faced with additional costs associated with road abandonment. Road removal project costs can vary widely depending on hillslope angle, road width, the types of treatment, equipment and manual labor, and replanting costs. Road removal costs could average about \$2,000.00 per mile. Basic road decompaction and re-seeding costs about \$500.00 per mile; ripping, decompaction, sidecast removal, and stream excavation (crossing removal) costs approximately \$2,000.00 per mile; while the price for full recountouring with hydromulching and re-vegetation approaches \$15,000.00 per mile. One benefit of road removal is savings in road maintenance, estimated at \$300.00 to \$500.00 per mile annually.

Landowners that are just starting to develop a road system on their property within a watershed may be forced to consider helicopter logging. In those cases, the cost of this rule could be very high, ranging between \$150 to \$200 per mbf.

For operations on slopes greater than 50%, this could require the work or review of work by a Certified Engineering Geologist (CEG). This could cost from \$500 to \$4,000 per plan, depending on complexity and whether the geologist was an employee of the landowner or whether the landowner would have to hire a consultant. Additionally, excavator/end-haul road construction could range from \$2,000 to \$5,000 per mile higher than dozer/side-cast construction. However, current operations are typically planned to avoid 50% slopes with new road construction. Therefore, the cost per plan for full bench construction could be less than \$5,000. This is also likely true for those roads with grades in excess of 20% for distances greater than 500 feet. Again, the average plan may be less than \$5,000.

In regard to areas with problem crossings, this is very site specific. The additional costs to replace, armor, or remove marginal crossings could be in excess of tens of thousands of dollars on a single plan. It is difficult to estimate how often this rule would be applied in the state.

Furthermore, as indicated in a previous section of this *Initial Statement of Reasons*, the Board staff also considered that increased levels of protection to watershed resources are likely to generate benefits that offset the costs anticipated from the change in the rules. Many of these increases are anticipated to be derived from improved road construction and planning throughout a watershed. As poorly constructed roads are often considered a primary cause of impacts to the beneficial uses of water, improvement in these areas will likely result in enhanced fisheries habitat over the long-term. Information from the Department of Fish and Game indicates an economic output from sport fishing in the State of approximately \$7.1 billion in 1996. The sport fishing industry alone generated 74,000 jobs that year. Other studies show that the public spends hundreds of millions of dollars each year on sport fishing. Some economists in Oregon have estimated that households, on the average are willing to pay \$2.50 to \$7.00 per month to protect or restore salmon. Those figures show an estimated \$3-8.75 million dollars per month that the public would be willing to spend to secure healthy anadromous fish habitat. Other values potentially derived from increased watershed protection could be attributed to a savings in necessary flood control in flood prone areas. Some estimates of \$208 per acre have been suggested as savings in flood-damage and other costs on downstream firms and households. Cleaner streams and healthier riparian ecosystems could also contribute to recreation and tourism in other ways besides fishing. Although the benefits derived from the change in the regulations are as difficult to calculate as are the costs due to the range of variables, the Board staff believes that the majority of the costs will be offset over the long-term by the benefits derived from enhanced watershed management.

Considering the above cost estimates and the offsetting benefits derived from improved road planning, design, and placement to protect the beneficial uses of water, the Board staff has determined that the proposed regulations are not likely to result in an adverse economic impact on businesses over the long-term.

TECHNICAL, THEORETICAL, AND/OR EMPIRICAL STUDY, REPORTS, OR DOCUMENTS

The Board of Forestry and Fire Protection consulted the following listed information and/or publications as referenced in this *Initial Statement of Reasons*. Unless otherwise noted in this *Initial Statement of Reasons*, the Board did not rely on any other technical, theoretical, or empirical studies, reports or documents in proposing the adoption of this regulation.

1. Public Resources Code §§ 4551, 4513, 4514.3, 4551.5, 4551.7, 4552, 4553, 4562.5, 4562.7, 4562.9, 4582, and 4584 *et seq.*
2. Barclays Official California Code of Regulations
3. Preliminary Economic Analysis of the Impact of Riparian Buffer Restrictions.
4. Single Page Spreadsheet Riparian Rule Simulator.
5. Four Rule Package Simulations.
6. Brief Summaries of Non-USFS Forest Statistics.
7. Estimated Costs Associated with Proposed New Forest Practice Rules, CDF et al; June, 1999.
8. Related Cost/Benefit Summary Information utilized, in part, in developing economic estimations related to the proposed Rules.
9. Long Range Plan for the Klamath River Basin Conservation Area Fishery Restoration Program; William M. Kier Associates; January 1991.
10. Analysis, Economic Impacts of Proposed Watershed Rules Announced by the California Board of Forestry and Fire Protection on July 23, 1999; Professor William McKillop; College of Natural Resources; University of California, Berkeley.
11. Economic and Environmental Impact Assessment of Forest Policy in Western Washington; Bruce Lippke and Bruce Bare; Timber West; July, 1999.
12. Report of the Scientific Review Panel on California Forest Practice Rules and Salmonid Habitat, Scientific Review Panel, June 1999.

Pursuant to Government Code § 11346.2(b)(6): In order to avoid unnecessary duplication or conflicts with federal regulations contained in the Code of Federal Regulations addressing the same issues as those addressed under the proposed regulation revisions listed in this *Statement of Reasons*; the Board has directed the staff to review the Code of Federal Regulations. The Board staff determined that no unnecessary duplication or conflict exists.

PROPOSED TEXT

The proposed revisions or additions to the existing rule language is represented in the following manner:

The following text depicts language changes as follows:

- 1) Proposed additions to the existing text is single underlined,
- 2) Proposed deletions to the existing language is shown as ~~strikeout~~